

Common Name: **Lower Columbia River coho salmon Evolutionary Significant Unit**



Scientific Name: *Oncorhynchus kisutch*

Area of Concern: The Lower Columbia River (LCR) Evolutionarily Significant Unit (ESU) includes the Columbia River and its tributaries from the mouth of the Columbia up to and including the Big White Salmon and Hood Rivers.

Year First Listed as a “Species of Concern”: 1995

Species Description:

Coho salmon are distributed throughout the North Pacific Ocean, and inhabit most coastal streams and rivers from Alaska to central California. Coho salmon are anadromous fish, meaning they migrate from the ocean to spawn in fresh water. In contrast to the life-history patterns of other anadromous salmonids, coho salmon from central British Columbia southwards generally exhibit a relatively simple, 3-year life cycle. Adults typically begin their freshwater spawning migration in the fall, spawn by mid winter, then die. Juveniles rear in fresh water for up to 15 months, then migrate to the ocean as “smolts” in the spring. Coho salmon typically spend two growing (summer) seasons in the ocean before returning to their natal streams to spawn as 3 year-old adults.

Rationale for “Species of Concern” Listing:

Demographic and Diversity Concerns:

The status of the LCR coho ESU is of great concern due to declines in abundance and productivity, reduced distribution, and threats to its genetic diversity. The ESU abundance exceeded 1 million fish in the early 1900s, while today it numbers between 2,000-5,000 naturally spawning fish. Over 90% of the historic populations in the ESU appear to be either extirpated or nearly so. Only two populations with any significant production remain, and these exhibit low abundance and declining trends. There is, and historically has been, significant production of hatchery fish in this ESU. Hatchery production is suspected of causing changes in population structure and diversity, and loss of genetic diversity within the ESU. Nonetheless, the abundant hatchery populations in the ESU represent a substantial portion of the remaining genetic resources within the ESU.

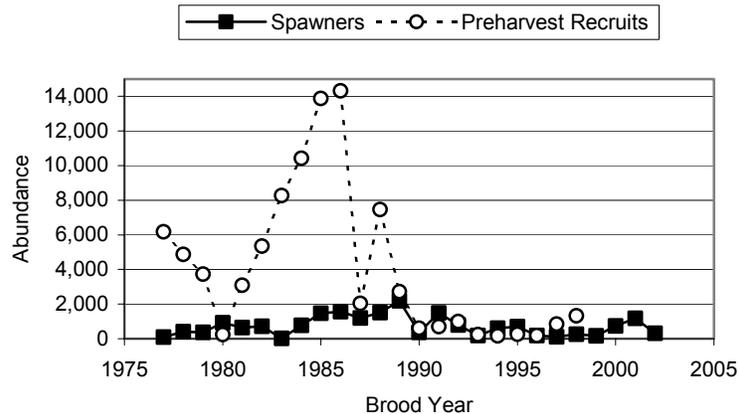


Figure 1. Estimate of preharvest coho recruits and spawners in the Sandy River. Based on adult counts at Marmot dam.

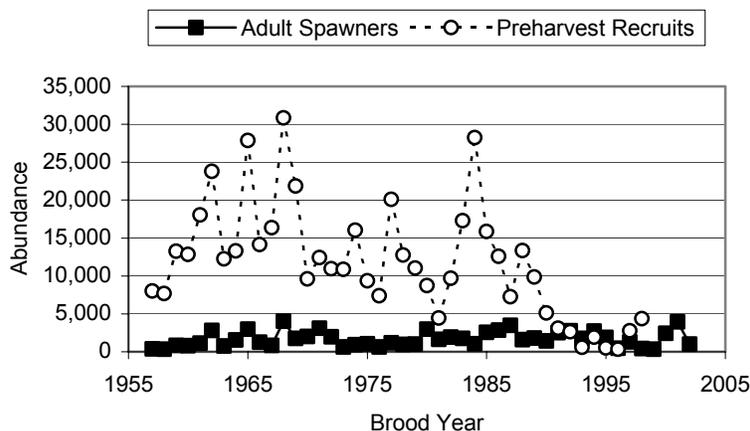


Figure 2. Estimate of preharvest coho recruits and spawners in the Clackamas River. Based on adult counts at North Fork dam.

Factors for decline:

As described above, hatchery production has been a key threat to the viability of LCR coho. Artificially produced coho salmon can adversely affect naturally producing LCR coho populations by: direct genetic changes caused by hybridization and introgression; indirect genetic changes from competition, predation and disease, and the loss of local adapted populations with the genetic homogenization that can occur with hybridization with widely straying hatchery stocks. Historically, LCR coho have been subject to significant sport and commercial harvests, with harvest rates between 80-90% in the 1950's-1980's. Harvest rates were reduced significantly in the 1990's, and in recent years are around 40%. Additionally, freshwater coho salmon habitat in the LCR, like most other West Coast river basis, is far from pristine. Logging, agriculture, urbanization, modifications to the river and estuary associated with Columbia River navigation, dams for hydropower a flood control, and pollution have contributed to the ESU's decline. Unfavorable ocean/climate conditions, severe storms, and volcanic eruptions have also adversely affected the abundance and productivity of populations within the ESU.

Status Reviews/Research Completed or Underway:

The LCR coho salmon ESU has been the subject of four previous status reviews. In 1991 NOAA Fisheries determined that listing was not warranted because the available information was inconclusive in identifying a "distinct populations segment" or ESU. A subsequent status review in 1995 identified LCR coho as part of the southwest Washington/lower Columbia River (SW-WA/LCR) ESU, and found that this ESU did not warrant listing under the ESA. However, the SW-WA/LCR coho ESU was listed as a "candidate" species due to specific risk factors and concerns about the overall health of the ESU. In 1996, NOAA Fisheries updated the 1995 status review. The findings of the 1996 status review update preliminarily indicated that the SW_WA/LCR coho ESU warranted splitting into separate SW-WA and LCR ESUs, but that the level of risk faced by these two ESUs was still in question. In 2001 NOAA Fisheries reassessed the LCR coho salmon ESU, and confirmed that it should be treated as a separate ESU. The Biological Review Team determined that the ESU was in danger of extinction. However, in September 2001, the *Alsea Valley Alliance v. Evans* U.S. District Court ruling called into question all of NOA Fisheries' listing determinations for Pacific salmon and steelhead made to date, and the findings for LCR coho ESU were never finalized. NOAA Fisheries is currently updating its listing determinations for 27 salmon and steelhead ESUs, including LCR coho. The agency expects to issue a proposed listing determination for the LCR coho ESU by January 2004.

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact Ms. Marta Nammack, NMFS, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, Marta.Nammack@noaa.gov; or Dr. Scott Rumsey, NMFS, Northwest Region, Protected Resources Division, 525 NE Oregon Street #500, Portland, OR 97232, (503) 872-2791, Scott.Rumsey@noaa.gov.